

REMARKS

Reconsideration of the present application is respectfully requested for the reasons that follow.

Objections

The Examiner has objected to the Abstract of the Disclosure because it does not include the method of making the claimed article, or the steps in the claimed process. We have amended the abstract, including the required disclosures, in response to this Office Action and so this objection should be withdrawn.

Rejections under 35 U.S.C. § 112, second paragraph

Claims 1-30 are pending in the application. The Examiner has rejected claim 12 under 35 USC § 112, second paragraph, as being indefinite for inclusion of the phrase "moreover comprises" which seems to contemplate that additional claim language should follow it. Claim 13 depends from claim 12 and was therefore rejected for the same reason. We have amended claim 12 to add the missing language. Written description support for this amendment can be found in the specification (see e.g., p. 3, para. 5).

The Examiner has rejected claim 18 under 35 USC § 112, second paragraph, as being indefinite for the use of the phrase "according to the present invention." The Examiner has rejected claims 17, 18, 19, 26, 28 and 30 under 35 USC § 112, second paragraph arguing that the "specifically" language in claims 18, 26, 28 and 30 renders those claims indefinite. The Examiner argues likewise the "preferably" and "for example" language in claim 19 renders that claim indefinite and the "and/or" language in claims 17 and 19 render those claims indefinite. We have amended the existing claims to remove the optional features and have then incorporated those features into dependent claims. For example, claim 17 has been amended to require that the proteins be

phosphorylated or sulphated and then a new claim has been added requiring that the proteins be sulphated and phosphorylated. These claim amendments have obviated this rejection and it should be withdrawn.

Rejections under 35 U.S.C. § 102(b)

The Examiner has rejected claims 1, 2, 6-8, 9, 15 and 16 under 35 USC § 102(b) as being anticipated by Tanner et al. (U.S. Patent Application No. 2003/0003474). Tanner teaches a porous, inorganic substrate for attaching an array of biological or chemical molecules and a method of fabricating such substrates. The Examiner argues that Tanner discloses a sample holder for performing assays comprising a substrate (para. 9), and a porous layer present on the substrate (para. 9) where the layer contains metal oxide particles (para. 11). The Examiner argues further that the Tanner biological assay substrate anticipates the MALDI mass spectrometry sample holder because MALDI mass spectrometry is frequently used for assaying biological materials. The Examiner also alleges that Tanner teaches the metal oxide particles (para. 11) identified in the instant claim 2, that the film has a thickness of 0.1-10 μm (para. 12) identified in the instant claim 6, that the substrate can be glass (para. 33) identified in the instant claim 9, and that the sample holder also comprises samples, including nucleic acids and proteins, to be analyzed (para. 52) as identified in the instant claims 15 and 16. Finally, regarding claims 7 and 8, the Examiner argues that Tanner discloses that the film thickness can be roughly 3 μm as claimed in the instant invention, because Tanner provides the film thickness of "at least about 5 μm ." The Examiner reasons that the qualifiers "roughly" and "about" indicate that the terms should be interpreted to allow a deviation of $\pm 50\%$. Applicants know of no case law that supports the Examiner's interpretation of these claim elements. Applicant requests that the Examiner either provide them with such supporting law or withdraw this rejection.

Furthermore, in an effort to expedite these proceedings, Applicant has amended claim 1 to distinguish it further from Tanner. In addition to requiring a substrate and a porous film, Tanner also requires an additional binding agent. This binding agent is a

uniform coating that is applied over the top surface of the porous inorganic layer. This binding agent functions to prevent cross talk of the bound biological molecules. Therefore, to distinguish the instant claim 1 from Tanner we have amended claim 1 to recite a "Sample holder for application in MALDI mass spectrometry, consisting essentially of" This claim element clearly distinguishes claim 1 from Tanner and, therefore, this rejection should be withdrawn.

The Examiner has rejected claims 19, 20 and 24 under 35 USC § 102(b) as being anticipated by Barrow et al. (U.S. Patent No. 5,585,136). Barrow is directed to a method for producing thick ceramic films on selected substrates. The Examiner argues that Barrow teaches each claim limitation of claim 19, including the use of a metal oxide particle and the production of a porous film. The Examiner argues that the term "ceramic" in Barrow (col. 4, l. 10) anticipates the "metal oxide" element of the instant claim 9. Barrow, however, does not define the term "ceramic." The Examiner uses a dictionary definition to define "ceramic" as "a material 'made typically of metallic elements combined with oxygen'" or a metal oxide. Barrow indicates that the resulting coating does not have any "holes, pores or defects" (col. 5, ll. 29-30) which is in direct contrast with the teachings of the instant invention requiring a porous film. Thus, the Barrow specification indicates that the elements cited from Barrow are not analogous to the elements of the instant invention and this rejection should be withdrawn.

Rejections under 35 U.S.C. § 103(a)

The Examiner has rejected claims 3-5 under 35 USC § 103(a) as being obvious over Tanner in view of Ellson, et al. (U.S. Patent Application No. 2002/0171037). Ellson is directed to a method and system for acoustically depositing a fluid on a cell sample surface. Ellson additionally discloses a substrate with an average pore size of 10 nm. Ellson, however, does not compensate for the deficiencies of Tanner when applied to the amended claim 1. Therefore, this rejection should be withdrawn.

The Examiner has rejected claims 10-11 under 35 USC § 103(a) as being obvious over Tanner in view of Wood, et al. (U.S. Patent Application No. 2004/0094705). Wood is directed to methods and systems for the high-energy desorption/ionization of various compositions which generally utilize structured substrates with films, in combination with surface coatings. Wood additionally discloses a sample holder coated with indium tin oxide. Wood, however, does not compensate for the deficiencies of Tanner when applied to the amended claim 1. Therefore, this rejection should be withdrawn.

The Examiner has rejected claim 14 under 35 USC § 103(a) as being obvious over Tanner in view of Mayer-Posner, et al. (U.S. Patent No. 6,414,306). Mayer-Posner is directed to a method of coupling thin-layer chromatography with MALDI mass spectrometry. Mayer-Posner additionally discloses a substrate to which film is applied in defined areas. Mayer-Posner, however, does not compensate for the deficiencies of Tanner when applied to the amended claim 1. Therefore, this rejection should be withdrawn.

The Examiner has rejected claims 17, 18 and 26-29 under 35 USC § 103(a) as being obvious over Tanner in view of Kuroda, et al. (U.S. Patent Application No. 2005/0170525) and in view of Mayer-Posner. Kuroda is directed to a method and apparatus for analyzing amino acids, saccharides and lipids. Kuroda additionally discloses the analysis of phosphorylated and/or sulphated peptides using a MALDI substrate with a metal oxide coating. Kuroda, however, does not compensate for the deficiencies of Tanner and Mayer-Posner when applied to the amended claim 1. Therefore, this objection should be withdrawn.

The Examiner has rejected claims 21-24 under 35 USC § 103(a) as being obvious over Barrow in view of Tanner and in view of Ellson. These references, including Barrow, have been discussed above. Barrow cannot be combined with Tanner

as Tanner requires that the film on the substrate be porous, while Barrow prohibits porosity. Thus, this rejection should be withdrawn.

The Examiner has rejected claims 28 and 29 under 35 USC § 103(a) as being obvious over Tanner in view of Kuroda and in view of Mayer-Posner. These references are discussed above. Kuroda does not compensate for the deficiencies of Tanner and Mayer-Posner when applied to the amended claim 1. Therefore, this rejection should be withdrawn.

The Examiner has rejected claim 30 under 35 USC § 103(a) as being obvious over Barrow in view of Kuroda and in view of Mayer-Posner. These references, including Barrow, have been discussed above. Barrow requires that the film on the substrate be non-porous which is contrary to the teachings of the instant invention, and neither Kuroda nor Mayer-Posner make up for this deficiency. Therefore, this rejection should be withdrawn.

In view of the foregoing, it is submitted that the present application is now in condition for allowance. Reconsideration and allowance of the pending claims are requested. The Director is authorized to charge any fees or credit any overpayment to Deposit Account No. 02-2135.

Respectfully submitted,

By /Carolyn L. Greene/
Carolyn L. Greene
Attorney for Applicant
Registration No. 57,784
ROTHWELL, FIGG, ERNST & MANBECK
1425 K. Street, Suite 800
Washington, D.C. 20005
Telephone: (202) 783-6040

RBM/CG